

IMPORTANT SAFEGUARDS



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. TO PREVENT ELECTRICAL SHOCK, DO NOT DISASSEMBLE. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. THIS UNIT FOR INDOOR USE ONLY



SA 1955

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



SA 1966

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

*Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical"

Our antenna rotator unit, consisting of a control and a drive, has been engineered and manufactured to assure your personal safety, but improper installation or abuse of this unit or the antenna connected to it, can result in potential electrical shock or fire hazards. In order not to defeat the safeguards incorporated in this unit, observe the following basic rules for its installation, use and servicing.

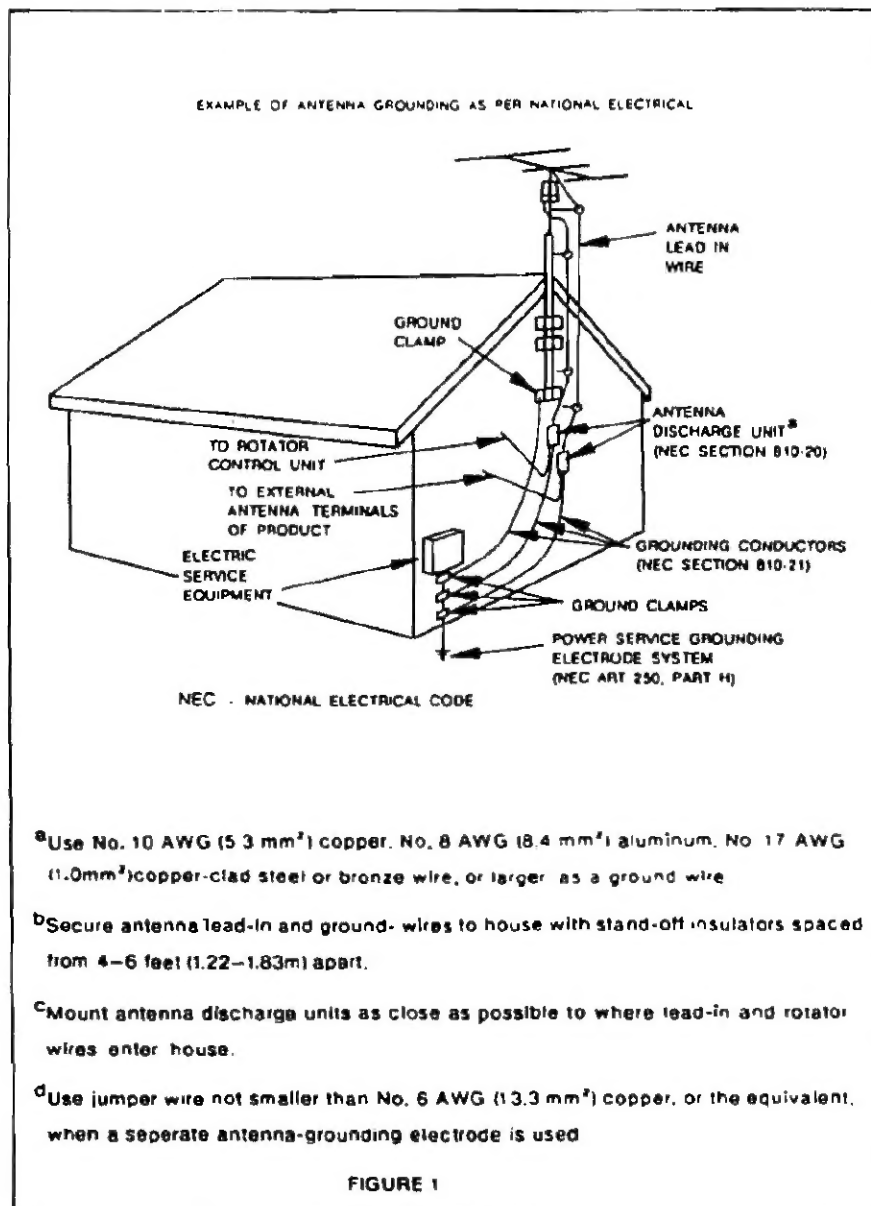
1. Read Instructions - All instructions should be read before the product is operated.
2. Retain Instructions - These instructions should be retained for future reference.
3. Heed Warnings - All warnings on the product and in the operating instructions should be adhered to.
4. Follow Instructions - All operating and use instructions should be followed.
5. Cleaning - Unplug the control unit from the wall outlet before cleaning. Do not use aerosol cleaners directly on the unit. Use a cloth dampened only with water or a cleaner recommended by the manufacturer.
6. Water and Moisture - Do not place the control unit near water; for example, near a bathtub, washbowl, kitchen sink, laundry tub, or in a wet basement.
7. Mounting - Mounting of the drive unit should follow the manufacturer's instructions, and should use hardware and interconnecting cable recommended by the manufacturer.
8. Ventilation - Slots and openings in the control unit cabinet are for ventilation, to provide normal operation and to protect the control unit from overheating. These openings must not be blocked or covered. The control unit should never be placed near or over a radiator or heat register. It should not be placed in a built-in installation, such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
9. Power Sources - This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your dealer or local power company.
10. Polarization - This product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact a qualified electrician to replace your obsolete outlet. Do not defeat the purpose of the polarized plug.

OR

Grounding - This product is equipped with a 3-wire grounding - type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact a qualified electrician to replace your obsolete outlet with one having a properly grounded contact. Do not defeat the purpose of the grounding-type plug.

11. Power-Cord Protection - The power-supply cord should be routed so that it is not likely to be walked on or pinched by items placed upon or against it. Pay particular attention to the cord at the plug and the point where it exits from the control unit.

12. Outdoor Antenna Grounding - If the drive unit is installed on an outdoor antenna, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA70--1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the antenna lead-in wire and drive-unit to control-unit interconnecting cables to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 1.



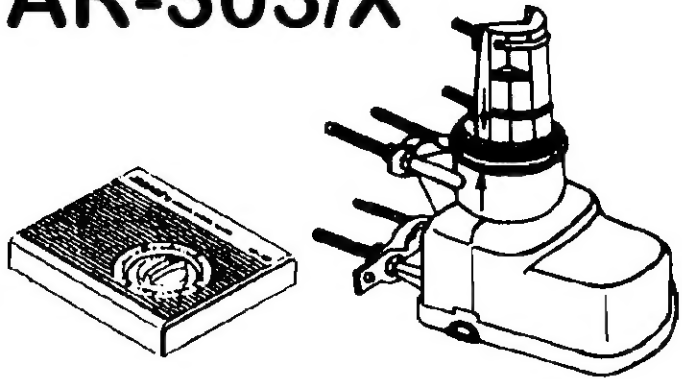
13. **Rooftop Installation** - Always use extreme caution when installing a rooftop antenna and rotator system to reduce the risk of falls. Wear rubber-soled shoes and use a sturdy ladder. Do not install on a windy day or when the roof is wet or is covered with ice or snow.
14. **Lightning** - For added protection for the product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug the control unit from the wall outlet and disconnect the interconnecting cable. This will help reduce the possibility of damage to the product due to lightning and power-line surges.
15. **Power Line** - An outdoor antenna and rotator system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outdoor antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them may be fatal.
16. **Overloading** - Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
17. **Object and Liquid Entry** - Never push objects or spill liquid of any kind through openings in the control-unit enclosure as they may touch dangerous voltage points or short-out parts that could result in a risk of fire or electric shock.
18. **Servicing** - Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other risks. Refer all servicing to qualified service personnel.
19. **Damage Requiring Service** - Unplug the control unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - a. When the power cord or plug is damaged.
 - b. If liquid has been spilled into the control-unit enclosure.
 - c. If the control unit has been exposed to rain or water.
 - d. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 - e. If the control unit has been dropped or the enclosure has been damaged.
 - f. When the product exhibits a distinct change in performance - this indicates a need for service.
20. **Replacement Parts** - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in a risk of fire or electric shock, or other risk.
21. **Service Check** - Upon completion of any service or repairs to this product, ask the service technician to perform check to determine that the product is operating as intended.

INSTRUCTION MANUAL

ANTENNA ROTATOR

AR-303/X

CAUTION: Read all of the IMPORTANT SAFEGUARDS contained elsewhere in this booklet, as well as all safety, installation and operating instructions supplied with this unit, and with your antenna, before installing or operating. Retain this booklet and all instructions for your safety and future reference.



DESCRIPTION

The rotator is designed to turn and accurately position even the largest TV antenna, assuring the best possible TV picture reception. Rotation of the drive unit is synchronized with the position of the moving dot of the control unit. This is accomplished by use of highly accurate synchronous motors.

The connecting cable between the control unit and the drive unit carries only safe, low voltage power. When the operating cycle is complete, the unit shuts off automatically and draws no current until it is again activated by turning the control knob.

OPERATING & INSTALLATION INSTRUCTION

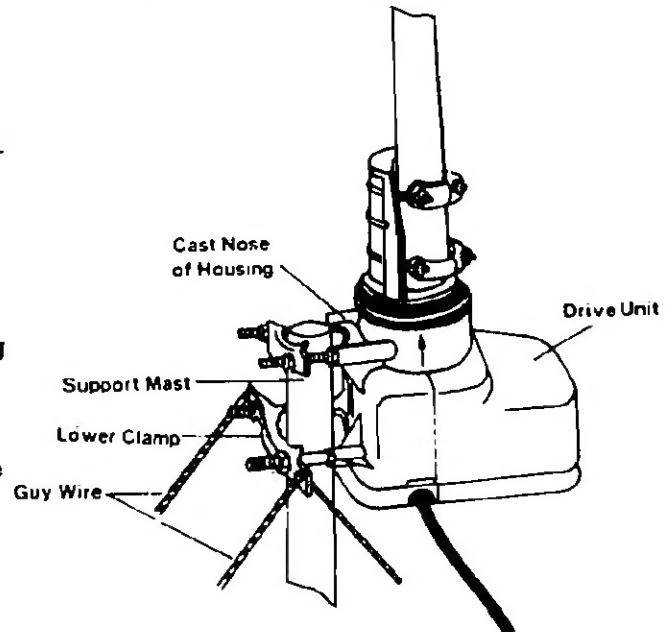
NOTE: Before mounting drive unit on the support mast, connect drive unit to control unit with the control cable and perform the function shown in paragraph 7.

STEP.1 DRIVE UNIT MOUNTING

If not mounted inside a tower, attach the drive unit to the support mast by loosening the nuts enough to get the clamps over the mast. Lower the drive unit the cast nose of the drive housing sits on top of the support mast and tighten the nuts. Moderate tightening of the nuts with a 7/16" wrench will cause the teeth to grip the mast securely. Do not overtighten to the point that you deform the mast, since this will reduce its strength.

Mast diameters of 1½" to 2" (3-5cm) may be used. The 1½" (3.8cm) size or larger is recommended for unguyed masts over 6' long, or where large antennas are used.

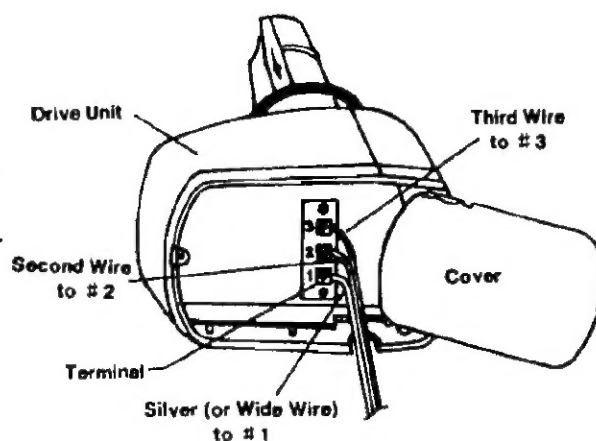
If guy wires are used, fasten two through each of the two holes of the lower clamp.



CAUTION: Select a mounting location where the antenna cannot come in contact with power lines while it is being installed, and where the installation will not fall across power lines if a guy wire should fail.

STEP 2: DRIVE UNIT CONNECTION

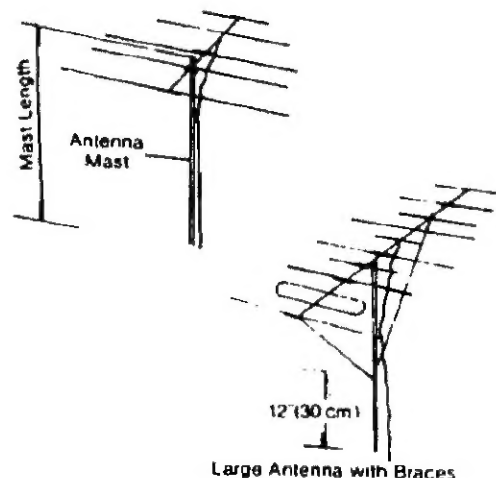
Up to 280' (84M) of 20AWG 3 conductor cable may be used. For longer runs, use heavier gage wire. To attach cable to the drive unit, snap open the cover using a coin or screw drive and connect the cable as shown. Remove the grommet and insert the cable thru the slot. Press the grommet back into the housing. Separate leads for 1½" (4cm) and strip off the insulation for ½". Find the silver or wide jacketed lead and connect it to Terminal 1. Connect the adjacent lead to Terminal 2, and the next lead to Terminal 3. If 4 wire cable is used, connect both wire 3 or 4 to Terminal 3. Mark sure there are no loose strands, which can short between terminals. Recheck the wiring order and securely close the cover. To avoid moisture collecting in the cable be sure jacket of cable passes thru the grommet.



STEP 3: ANTENNA MAST

Antennas should be mounted close to the drive unit. Cut 1-½" (3cm) antenna mast to a length not exceeding that shown below and mount the antenna at the top of the mast. Attach transmission line to the antenna.

Antenna Size	Max. Mast Length
Small (up to 5' (1.5M) long)	5 feet (1.5M)
Medium (up to 8' (2.4M) long)	3 feet (0.9M)
Large (over 8' (2.4M) long)	2 feet (0.6M)
Large with Braces	See Note
Two Antennas*	4 feet (1.2M)

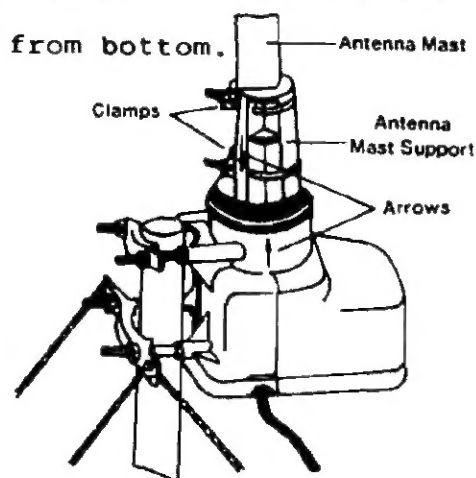


NOTE: Cut antenna mast 12" (30cm) longer than distance needed to mount antenna and brace.

* Mount small antenna at top, larger antenna 12" from bottom.

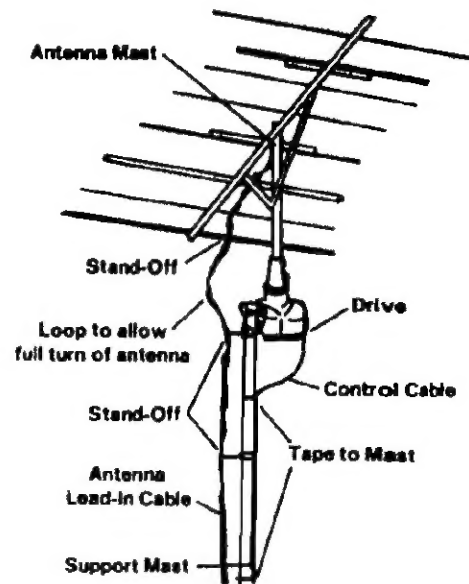
STEP 4: ANTENNA MOUNTING

The arrow of the antenna mast support and housing must be aligned. If not, turn the knob of the control until the arrow of the antenna, mast support is in the position shown in the sketch. Loosen the clamps of the mast support enough to accept the antenna mast. Insert the antenna mast between the clamps and the mast support. The end of the antenna mast must sit on the bottom of the mast support. Rotate the antenna mast until the antenna points south, and tighten the nuts. Excessive overtightening of the clamp nuts will weaken the antenna mast without adding more clamping action. In some instances, where desired stations are predominantly in a northerly direction, it may be desirable to point the antenna north in order to avoid having the rotator operating near its end stops. If this is the case, point the antenna north instead of south when arrows are aligned. If this is done, please note that the antenna is pointing in the opposite direction from that indicated on the control. For example; When the control is pointing to North the antenna will be pointing South and when the control is pointing to East the antenna will be pointing West. Using channel as described in Step 9 will help to eliminate confusion.



STEP 5: CABLE INSTALLATION

After connecting the antenna lead-in cable to the antenna fasten it to the antenna mast using stand-off insulators as shown. Provide a generous loop at the drive unit and attach lead-in cable to the support mast with stand-off insulators approximately every four feet. Tape the rotator control cable directly to the support mast. NOTE: See Step 1 of the Important Safeguards Section for Grounding of Control Cable and Lead-in Cable for Lightning Protection.



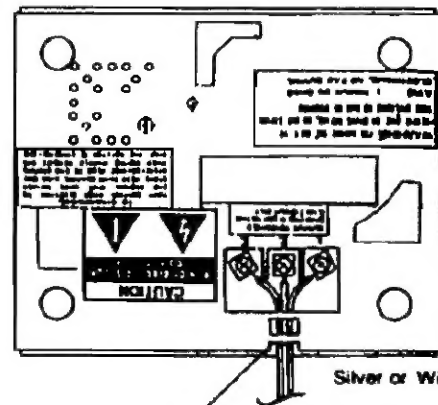
STEP 6: CONTROL UNIT CONNECTION

Prepare the end of the lead-in cable as shown. Use the cut/strip guide on the underside of the control to determine the proper spacing and lengths. Run the cable through the strain relief channel on the underside of the control unit and connect to the terminals in proper order. The wide or silver wire is to be connected to Terminal 1 as on the drive unit. The next wire is connected to Terminal 2, and the next lead to Terminal 3. If 4 wire cable is used, connect both wire 3 and 4 to Terminal 3.

Tighten all the terminal screws after rechecking the wiring order and making sure there are no loose strands that could short between terminals.

Improper connections will result in incorrect operation of the units or permanent damage.

IMPORTANT: Number 1 terminal on the drive and control units must be connected to each other, as must Terminal 2 and Terminal 3.



Thread Cable Under Bridge & through Strain Relief

Terminal Connections
Silver or Wide Wire to #1
Wire #2 to #2
Wire #3 to #3
Wire #4 to #3

Prepare cable as shown using Cut and Strip Guide on bottom of control

Ground Outside Conductors Through Static Discharge Unit

STEP 7: TESTING

With drive and control units properly wired together, plug control into proper A.C. outlet after checking voltage and cycle data on underside of control. Do not use D.C. Turn the control knob fully clockwise. The dot of the indicator disc will start moving clockwise. The low sound of the running motor will be heard from the control unit. When the antenna reaches the end of rotation, the control unit dot will stop moving and the unit will automatically switch off. Repeat this procedure turning the knob fully counterclockwise. When the dot reaches the north position and switches off, the control unit and drive unit are synchronized. Turn control knob to south "S" to align arrows of drive unit for correct antenna installation.

STEP 8: RESYNCHRONIZATION

Should the antenna position move out of synchronization with the control unit indicator dot, turn the knob clockwise against the north end of the rotation stop. Wait until the dot stops moving and then turn the knob counterclockwise against the north stop. When the dot stops moving, units are synchronized. This procedure can be repeated whenever needed.

STEP 9: USE OF CHANNEL MARKERS

With units synchronized as above, turn the control knob to the position of best reception for each desired TV channel. Remove the appropriately numbered channel marker from the label provided and place it on the control dial face at the knob position selected for the best reception of each TV channel.

STEP 10: OPERATING INSTRUCTIONS

To rotate the antenna, turn the control knob to the desired reception direction. While the antenna is rotating, the indicator dot will move, indicating the direction of antenna rotation. When the antenna reaches the selected direction, it will automatically stop. Do not force the knob beyond the end of rotation stops. The rotation of the antenna may be stopped at any time by reversing the original direction of knob rotation just far enough to cause the dot to stop and the control unit to shut off.

When locating the direction of a station for the first time, rotate the antenna several times through the point of best reception. The correct direction can then be noted for future reference by placing the appropriate channel marker on the dial face at this position. If there is reason to believe that the antenna and control unit are not tracking together, it may be necessary to synchronize the system. (See Step 8-Resynchronization)